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The Late Captain Haslam.

We now know all that will probably ever be known of the death of Captain Haslam. Some few months ago he was selected by the Foreign Office and sent out to British East Africa on special duty. The carriage of goods in that country had been seriously affected by the ravages of rinderpest among the cattle. The equine species was also decimated by disease, and carriage was almost dependent upon human labour. Under these circumstances the importance of having a man on the spot capable of dealing with disease cannot be over estimated. Captain Haslam's scientific abilities and his wide and varied experience of diseases in India and Africa indicated him as the very man for the position. It was hoped not only that he might practically save the animals, necessary for transport work, from some of the fearful mortality that afflicted them; but that he would be able to thoroughly investigate the nature and spread of the diseases and so place preventive measures on a better footing in the future. That he had already made a good commencement in the scientific study of disease was demonstrated by the article from his pen published in our pages on August 27th. He wrote—"I desire to place on record that I have found the living trypanosoma of Tsetse fly disease in several other flies than the Tsetse fly . . . . . Horses, mules, and donkeys die in East Africa from Tsetse fly disease; and of all diseases I know of none can give rise to such a variety of symptoms. Dogs generally enjoy freedom from the disease in the fly country . . . . Oxen die in the Coast belt or or within about 180 miles along the road from Mombasa. They die from a disease characterised by the presence of a trypanosoma in the blood. This disease is in no way associated with the bite of the Tsetse fly."

In the kindly letter sent us last week by Mr. Stordy we are told that Captain Haslam when he met his death, "was up country superintending preventive treatment of cattle against rinderpest." This statement reminds us of a paragraph towards the end of Captain Haslam's communication. He wrote, "You will be interested to know rinderpest is prevalent in the interior, beyond the Coast belt, and that the Government are endeavouring to stop its spread. I am engaged in this work and am doing so in one direction by two cordons of Masai warriors and Wahamba Police. Slaughter of all infected cattle would mean tribal risings everywhere." Whether his death may not be traced to some mistaken ideas on the part of the natives, as to his preventive work, we know not. What is certain is that he lost his life whilst fulfilling his professional duties and that he died as a brave man should.

His loss to his profession is great and to the district in which he died well nigh irreparable. Captain Haslam was in the prime of life. He was an enthusiast in all his work, and when stationed at Woolwich never missed a meeting of the Central Veterinary Society, the members of which will long remember the interest he took in every subject brought forward. Mr. Stordy finishes his letter from Nairobe thus—"Captain Haslam's death has occasioned widespread regret out here. His genial and kindly manner endearing him to all with whom he came in contact." Here, too, regret will be widespread among the members of his profession, whilst those who personally knew him will confess to a deeper feeling.

The Danger of Milk.

Professor Delépine's lecture, which we reprint from *The Lancet*, cannot but impress upon all readers more deeply than before the urgent necessity for some skilled inspection of cattle kept for the production of milk. Nothing will be done unless the Government are convinced that the consumers of milk desire protection. The public is silent because it knows not its danger. We who know have a duty to perform, and that is to lose no opportunity of spreading the truth. Every practitioner should remember tuberculosis when he comes in contact with Members of Parliament or with local councillors.

The Veterinary Schools.

Next month will see the opening of the winter session at all the schools and, without fear of overcrowding, we hope they will all obtain large classes. There is still room for veterinary surgeons, and the old practitioner may best prevent the young one elbowing him by helping to obtain for veterinarians those new posts for the protection of public health, and for the practical application of hygienic knowledge that we all believe should exist. Every Local Authority should have a veterinary adviser. In every district there is work for him, and it is work no other class can do properly.

On October 3rd Professor Shave delivers the opening address at the Royal Veterinary College. On Wednesday, the 5th, the Glasgow Veterinary College commences its session. On October 19th Dr. Farquarson, M.P., delivers the introductory address at the Royal (Dick) Veterinary School. At the New Veterinary College, Edinburgh, Prof. Davis gives the opening lecture on October 5th.

CASES AND ARTICLES.

HAIR CYSTS AND SINUS.

By Vet.-Capt. S. M. Smith, A.V.D., Aldershot.

These cases occurred at Saharanpur, N.W.P. India, last year.

A small tumour the size of a small fowl egg existed on the left side of a remount, which would be pressed by the flap of a saddle. On examination its contents were found to be fluid Exit was given to the pale coloured semi-serous slightly caseous liquid. The wound refused to heal, so after ten days the animal was cast, the wound enlarged, when a sac was found existing with three separate openings passing in an inward and upward direction. These were laid open and found to end in a nest of hair mixed with a caseous mass. The wound, now a large one, was thoroughly washed antiseptically, and rapidly healed.

In the next batch of remounts I found a similar tumour on a shoulder and at once opened it and searched for the sinus, and having opened this up I found another nest of hair and similar caseous material. Similar after treatment caused rapid healing.

In another remount a sinus existed at the root of the left ear from which an oily discharge constantly exuded. The sinus was opened up, but refused to heal. On casting the animal I found a complete serous sac existed, deep seated. This was carefully dissected out, when the wound rapidly healed.

TREATMENT OF FISTULA.

By Vet.-Major Joshua A. Nunn, F.R.C.V.S., C.I.E., D.S.O., A.V.D.,

In continuation of the excellent paper by Mr. Brooks in the issue of *The Veterinary Record* of September 10th, I would like to make the following few observations.

Among horses owned by natives in India fistulous withers of an aggravated nature owing to badly fitting harness and saddlery are most common, and combined with neglect and apathy on the part of the owner run into a degree unknown in England. At one period of my life I had many such cases through my hands, and my experience is that surgical interference is always necessary. If there is caries of the spine of the vertebræ I have always found the best plan to be to resect it without delay. Although severe, the operation is by no means as formidable as might be supposed. An anæsthetic is necessary, and a free bold incision made down the median line of the wither, inclined to one side of the spine of the vertebræ so as to expose them. The diseased one can readily be removed by means of a Heyes saw, sharp and lion toothed bone forceps, and scalpel. A description of the operation is given by M. Cadiot in his "Exercises de Chirurgie Hippique" page 44. M. Cadiot directs that the tissue should be dissected away from both sides of the bone, but my experience is that it is only necessary on one, when the resection can be performed, the bone seized with the forceps, raised out of its muscular bed, and detached with a few strokes of a strong scalpel. By this plan I have found that a smaller operation wound is made, in fact one instead of two. Drainage, of course, has to be arranged for, and the lips of the wound kept together either by a Russell's suture, or better still with a truss round the body, of which I published a drawing in *The Veterinary Journal* of 1893. If care be taken to bring the edges of the wound into apposition there is surprisingly little after deformity. On several occasions I have noticed that although to outward appearance the bone was healthy, on closer examination a small spot was found on the head with a sinus running into the cancellated tissue, which was extensively diseased, although the outer surface of the bone was not. Had resection not been performed in such a case it would only have gone on from bad to worse, breaking out again after apparently healing.

A REMARKABLE CASE.

By C. A. Powell, Jun., M.R.C.V.S., Woburn.

I desire to record the following remarkable, and to me unique, case, thinking it might prove of interest to your readers.

On the 27th day of April, 1893, my father and I were called to Mr. Ephraim Ellingham's, of the "Fleur-de-Lis," Hockliffe, to foal a mare, a nag mare about 9 years old, that had bred two previous colts. She had been served during the season of '92 and her time was supposed to be about up.

On our arrival we found the mare very uneasy with apparently colicy pain, and gathered that she had been rolling about a goodish bit. On examination we found no appearance of foaling, nothing whatever presenting itself.

The mare certainly looked as if she wouldn't be long before she foaled, looking very promising, having a good bag, teats waxed and milk springing, and the colt had been observed to kick for some time past.

After watching her for some time we left, seeing her again the following day and rathing expecting to find a foal by her side, but we found her quiet, all uneasiness had ceased, and there was still no appearance of any sign of foaling.

For about a month after we saw her occasionally, the mare being kept quiet and well looked after, going out in paddock by day, lying in at night. The mare was very dull and poorly for some time, but never showed any more appearance of foaling; her milk dried up, her belly resumed nearly its natural size, but was always larger than it was before she was in foal, and the mare gradually returned to her usual health.

After a while the mare was put to her usual work, drawing about a light cart to the villages round (her owner being in the butchering business) and from that time to this, the 4th day of September, 1898, a period of over five years, she has shown no signs of

foaling or illness, except now and then a slight touch of colic, her condition unusnally good, the mare being quite fat, and what is very remarkable she was several times observed to be in use during the season though she was never put to the horse again.

Last Sunday, September 4th, we were again called to the mare, said to be very bad with "gripes" we found her in a hopeless condition, and the mare died the next day.

Being busy at the time I was not able to make a post-mortem examination, but told the owner if there was a foal inside her to send it me, which he did on the Tuesday morning, with the following note, a copy of which I send.

"Sir,—I send you this to look at for I never heard talk of such a thing in my life, it was worked right up in its gullet.—E. Ellingham."

From what I could gather by questioning, the womb was found shrivelled up, and the foal (a fully developed one weighing about a hundredweight) laid up close to the stomach, the hind part touching the diaphragm, its hind and fore legs doubled beneath it, with its head lying on its chest between the fore legs. It was surrounded by its membranes, which were intact and easily separated from it. The foal was well preserved, its hair being as tight as in life; its flesh was firm, and on being cut rather yellow in colour, and there was not the least appearance of either putrefaction or mummification.

I would like to ask if any of your readers or any member of the profession had ever met with or heard of a similar case. My opinion is that when the mare was rolling about in her attack of "gripes" she ruptured the uterus, and the foal descended into the abdominal cavity, perhaps some of your readers can better account for it.

ANÆSTHESIA.

It is not proposed in the brief space at the writer's disposal to go into the physiology of anæthesia, but rather to offer a few practical remarks on the subjugation of animals by its means, to enable us the better to perform operations.

As a profession, it is doubtful if we have availed ourselves of anæsthetic or anodyne agents to the extent that our opportunities, our convenience and the sufferings of animals would dictate. We were slow to adopt them, and for many reasons. As surgeons, our average of success has always been high. We are with very few exceptions *surgeons* and in this department compare well with the sister profession, only a small proportion of whose members undertake operations of importance, these being commonly performed at hospitals or by specialists, the general medical practitioner having but little opportunity of acquiring the nerve and dexterity of the veterinary surgeon.

Against anæsthesia in a country practice it may be argued that we cannot afford the time and agents for such small and unremunerative operations as castration of the pig and calf; neither does it appear necessary although one of our leading agricultural papers not long since took up the subject with some warmth of advocacy. The time occupied in securing and operating upon either of these animals is short, the operation quickly performed, and judging by their subsequent behaviour the pain will bear no comparison to a similar performance upon the human subject. Chloroform would not save them from the subsequent pain and discomfort which is inevitable. We cannot, in a practice where we have to live by the work done and chargeable to owners, play about with anæsthetics, keeping an animal anæsthetised for half an hour in order "to examine the skin." It may be a pretty pastime for a young Professor, but our clients in an everyday practice would vote us mad if we took the risk of chloroform in order to look at a dog's skin, or cut his toe-nails, "lance an ear," "dress a wound," "examine the teeth," etc.—nor could we expect to subjugate two hundred and fifty subjects in succession and only lose one which might as well have died "from struggling had no anæsthetic been used." This is certainly the tallest account of its kind in Europe or America, and we congratulate the young teacher on having broken all previous records. Professor Penberthy will have to retire on his well-earned laurels in face of such a table as that published by his learned junior.

With the Dog and the Cat we have a different set of conditions. The study of evolution has taught us nothing if we do not perceive that ages of, not merely domestication, but intimate association and companionship, have developed in these friends of ours a nervous sensibility which wholly removes them from the class of "dumb driven cattle" whose sole mission is to grow into food. It is not to be imagined that these animals are capable of such suffering as a neurotic American woman, for they cannot anticipate, and some, but not all, fail to reflect. Canine and feline patients are of increasing importance to us as practitioners, and the younger members have shewn a commendable zeal in wresting from the empiric and the charlatan a profitable branch of our legitimate profession.

For many minor operations we have an invaluable agent in cocaine. Operations upon the eye can be neatly and safely performed, dew claws removed and some of the tumours to which dogs are prone as they advance in years. This drug has none of the disadvantages of other local anæsthetics, as ice, or the production of intense cold by ether, or ethyl-chloride, and its effects are not so evanescent. The danger of absorption is comparatively slight when advantage is taken of Dr. F. Costa's suggestion to heat the solution to 120 or to 130 degrees Fahrenheit. The solution need be only of four or five per cent strength, acts quicker and lasts longer than a stronger preparation employed at a lower temperature.

Eucaine hydro-chlorate has not yet proved more effective than cocaine. Its advocates claim for it greater safety, as a larger dose can be given without toxic effects. It can be sterilised by boiling without altering its composition and it will retain its strength indefinitely. The length of time taken to produce its effects in our experience is a decided objection, ten to fifteen minutes frequently elapsing before an operation could be attempted. Nor have we found

any advantage in the admixture with cocaine, which has by some been recommended.

For cats, a subcutaneous dose of half a grain of cocaine may be considered a maximum consistent with safety, and except for very large dogs, a grain should not be exceeded. Ten to fifteen grains is a fair quantity to employ in the case of horses and cattle. If we much exceed this amount one of our objects in inducing anæsthesia may be defeated, and instead of a perfectly still subject we may get persistent muscular twitchings.

We are certainly progressing in our application of local anæsthetics, but it is desirable that our members should give their individual experience of such agents as those referred to, and not depend too much upon the reports of enthusiasts who abandon good remedies for the sake of anything new. Guiacol is one of the new so-called anæsthetics, but is extremely unsatisfactory. At the best it is but a poor substitute for cocaine. If it possesses a complete freedom from toxic danger it has but little influence in reducing sensibility.

General Anæsthesia: If it were *more* general should we not gain in respect for humane methods of treatment? A development in the opposite direction is that of the standing operation upon colts. Its advantages cannot be denied, but it is at the cost of increased pain, and is therefore less scientific than "acrobatic."

A good deal of ingenuity has been displayed in the invention of chloroform muzzles, those of Mr. Dowell and Mr. Huish being among the latest. No such apparatus is necessary for horses; more complete control is gained by having one nostril free and a chloroform sponge in the other; while a cone of cardboard answers better for small animals than any of the scientific toys we have tried.

Many curious statements have been made in the veterinary press in regard to anæsthesia. It has been said that dogs are better subjects for chloroform than cats, for instance, but our experience is quite opposed to such a conclusion. The safest anæsthetic, and the only safe one for dogs, is pure æther. Its objection is the tendency to muscular tremor, which may be overcome by adding a very small proportion of chloroform when æther has already rendered the animal insensible. Cats we find take chloroform with comparative safety, but in the case of long haired silver tabbies and "blue smokes" there is often prolonged resistance and sudden collapse. No reason can be given for the intractability of cats of these colours, but it is a matter of experience. All the long haired varieties are more liable to syncope than the common English cat.

The glass bell jar is a suitable vessel in which to anæsthetise small animals as the patient can be seen and the process *rushed* as fast as possible. Quite the opposite plan is usually advocated, but the writer is convinced of the correctness of his conclusions from an experience which commenced before the birth of the professor who has written so much on the subject during the last year or two.

ONE OF THE RANK AND FILE.

ABSTRACTS FROM FOREIGN JOURNALS.

SURGICAL TREATMENT OF PERSISTENT BLEMISHED KNEES IN THE HORSE.—By MM. DELCAMBRE and VINSOT.

This operation of autoplasty or plastic surgery introduced into veterinary practice by Cherry, and resuscitated by Hunting, has been placed on a surer basis by the authors, and one of them (Vinsot) has made it a speciality.

Preparations for the Operation.—This operation is in itself one of the simplest, but let us add with the authors "to be successful it is indispensable to strictly conform to the rules of asepsis and antisepsis, so well described in a magistral lecture, delivered at the Necker Hospital by Dr. Le Dentu (*Recueil de Médecine Vétérinaire, 15 Juin, 1893, p. 391.*) MM. Delcambre and Vinsot add: It is also indispensable to have at one's disposal a machine to lay the horse in (a travail-bascule if we are not afraid of being accused of recommending it). This apparatus is useful not only to maintain the limb in a complete state of extension, but still because the bandage applied after the operation prevents flexion of the knee, and therefore, makes it impossible for the animal to rise alone. Finally, it has the advantage of allowing strict application of the aseptic method, and it does away with the straw bed which is the principal cause of infection of all our surgical wounds.

It is advisable, before commencing the operation, to have at hand and prepared in advance instruments and dressings as follows: clipping machine, razor, bistouries, scissors, hæmostatic forceps, mouse-toothed forceps, suture needle, silkworm gut sponge-tampons composed of carbolised gauze, iodoform gauze, freshly boiled cloths, absorbent cottonwool, strips of tarlatan, cotton bandages, bandages rolled in dry plaster of Paris, brush, soap, boiled water in several basins, carbolic lotion 2·5 per cent., solution of permanganate of potassium 10/000 solution of bi-sulphite of sodium 125/000 and sulphuric æther.

All the instruments should be composed entirely of metal, and previously rendered aseptic by prolonged immersion for about 20 minutes in boiling water; they should be placed in enamelled metal trays previously burnt by the alcoholic flame, and containing a small quantity of boiled carbolized lotion.

Method of Operating.—The operation comprises four principal steps, namely:

1. Fixing the subject, and the aseptic precautions.
2. Excision of the cicatrix.
3. Suturing the operation wound.
4. Applying the antiseptic dressing and the contentive bandage.

Fixing the subject and aseptic precautions.—MM. Delcambre and Vinsot use the travail-bascule, which they repeat is almost indispensable. The pastern is fixed to the lower horizontal bar, and held by the aid of the windlass of the gallows, whilst the windlass of the girth draws this in an opposite direction. This double tension gives an amount of fixidity to the limb to be operated upon, but, to be surer, a piece of

webbing is fastened to the upper part of the fore arm and firmly held behind so as to place the limb in the greatest possible state of extension. In this manner, all movement is prevented and the animal is ready. It is very useful to apply a rubber tourniquet to the upper part of the fore arm to prevent hæmorrhage, and enable the operation to be carried out with the greatest facility.

The aseptic precautions recommended are as follows: "The hair is clipped off the anterior face of the knee, which is washed with warm water and soap, and then completely shaved; the part is again energetically washed for five minutes with soap and boiled water, and then washed and brushed with the solution of potassium permanganate, and afterwards with that of the bi-sulphite of sodium, which removes the stain of the permanganate; and, finally washed with æther to dissolve and remove the fatty material. In order to keep the region free from impurities which may soil it, linen bandages rendered aseptic by immersion in boiling water should be wrapped round it. The hands and arms of the operator and those of his assistant are in their turn entirely disinfected in the same manner as the operatory region and with the same antiseptic solutions.

Excision of the Cicatrix.—By the aid of scissors a window or opening is made in the cloth which envelopes the knee, in the vicinity of the cicatrix to be removed; with a fine pencil (brush) immersed in tincture of iodine one traces round the blemish the two curvilinear incisions, which define the strip to be removed, in the form of a melon seed (côte de melon) and to include the entire cicatrix. The two incisions must be perfectly symmetrical and meet one another at very acute angles. As to their direction they must be longitudinal. MM. Delcambre and Vinsot recognise that when the incision is made crosswise the cicatrix may become ruptured even 15 days after the operation, when the bandage has been removed. If on a horse of medium height the hairless surface to be removed equals in width the diameter of a ten centime piece (size of a penny) or three centimetres, the lips of the operation wound unite perfectly. The approximation for a cicatrix of a diameter of a five franc piece (equals a five shilling piece) or 37 millimetres, is most difficult, but with firmer tractions aided by separating the entire skin from the anterior surface of the knee, one can still obtain a perfect suture.

Having traced out the strip of skin to be removed the operator armed with a scalpel held like a pen makes the two incisions, with a clean cut if it is possible, and presses the wrist firmly on the limb, because it is important that the lips of the wound should be extremely well defined. Afterwards take one of its extremities with the forceps held in the left hand, and dissect by drawing away the skin from the subjacent skin and taking care not to leave the least possible portion of indurated tissue adherent, but respecting the synovial membranes. The strip thus excised, one must remove the fragments of cicatrical fibrous tissue that may remain so as to forma clean wound, and with the hæmostatic forceps the small bleeding points which are produced are arrested. If the loss of substance is too considerable to allow of bringing together of the lips of the wound, the skin must be separated from the whole of the anterior face of the knee in order to facilitate its sliding and to obtain their perfect coaptation.

Suturing the Operation Wound.—After hæmorrhage has been arrested, the wound is carefully dried with the aseptic or carbolised gauze tampons. It is important not to leave blood clots, which are prejudical to cicatrisation. The suture is then made by means of a handled needle and silkworm gut, commencing at one of the extremities of the wound and gradually working towards the other extremity. The sutures are passed through the skin about 5 or 6 millimetres from the lips of the wound, and making separated points (interrupted suture) and leaving interspaces of a centimetre. Towards the centre, the assistant facilitate approximation, if necessary, by pressing the lips together with the thumbs. The surgical knot, which is performed by passing one end of the silkworm gut twice under the other end, instead of a single one as in a simple knot, should be employed to prevent it becoming loosened. The silkworm gut lends itself admirably as a suture; it is strong, aseptic, non-porous, well borne by the tissues, very easily removed, and preference should be given to it in suturing the skin.

Antiseptic Dressing and Bandage.—The anterior face of the knee after being dusted with iodoform is covered entirely with iodoform gauze, and finally with plenty of absorbent cotton wool. These different dressings are kept in position by means of a band of boiled tarlatan, slightly wet, which is gradually rolled round the limb, commencing at the inferior part of the metacarpus. This dampened strip of tarlatan admirably adapts itself to this region and nothing more suitable exists for this purpose.

As the appliance should remain *in sitü* for 15 days, it is indispensable to thoroughly pad the parts, such as the fetlock and the bony and lateral parts of the knee, as sores will surely supervene without this precaution. The contentive apparatus may then be used. It is a plaster bandage applied in a very simple manner. It consists of strips of tarlatan about 6 metres in length by 10 centimetres in width and rolled, in advance, in fine and dry plaster of Paris. Two or three strips of 6 metres each suffice for a bandage of this kind. They are dipped, one by one, at the time of use, in slightly warm salted water to increase their solidification, and rolled and moulded round the limb, successively, commencing always at the inferior part. While the operator is using one, the assistant soaks a fresh one, and so on. Ten minutes after their application, the animal is released from the machine.

After 10 days the appliance is removed in its entirety, the plaster bandage is cut by means of a paring knife and hammer, or better with strong shears, after having been previously saturated with warm water. The wound is then found to be in a state of complete cicatrisation by first intention, without the *least droplet of serosity or pus.* The silkworm gut suture must be removed with scissors and aseptic forceps and then a slight dressing composed of iodoform gauze, aseptic cotton wool and dampened tarlatan is applied for eight days to complete cicatrisation of the suture points. After this time the

animal may be allowed to lie down, and exercised in hand, or put to light work. A slight puffiness of the operated region still persists for a few days, but it quickly disappears; the hair grows gradually, and instead of the unsightly blemish of former times there only remains at the most a fine linear cicatrix, slightly bristled by the suture points, which entirely disappear when the hair has regained its normal length. The animal, consequently after undergoing the operation, recovers its integral value.

MM. Delcambre and Vinsot strongly recommend:

1st. To be strict in the complete asepsis of the instruments, hands, dressing materials and operatory region.

2nd. Do not fear to separate the lips of wounds in a manner sufficient to obtain complete apposition.

3rd. Make the suture points very regular and tighten them to the degree required, so that the apposition of the lips shall be very exact.

4th. Dry the operatory region and remove the blood which soils it so as to have a perfectly dry dressing; a rubber tourniquet applied above the forearm enables one to perform the operation much more quickly, by opposing the afflux of blood which often troubles the operator.

5th. To well pad the bony projections of the region in order to prevent sores, which are quickly brought about without this precaution.

6th. Finally, do not remove the plaster apparatus before the 10th day, and the sutures on the 15th.

If, during the time of the treatment no painful swelling of the limb is caused, no pruritis is manifested, and no odour *sui generis* of suppuration is given off from the dressing, we may feel certain that reparation is being regularly effected by first intention. It may happen that one or two suture points become infected by atmospherical dust, or rather by some error in asepsis giving rise to a little suppuration. In this case it is advisable to delay the removal of the sutures for a few days, and gently apply the stick of nitrate of silver to the infected points and a few granulations; and the suppuration will remain localised and reparation regularly achieved.—(*Bulletin de la Société Centrale de Médecine Vétérinaire, p. 515, 1894.*)

H. G.

EXTRACTS AND NOTES.

TUBERCULOSIS AND THE MILK SUPPLY, WITH SOME GENERAL REMARKS ON THE DANGERS OF BAD MILK.

A Lecture delivered at Sudbury Hall at the Invitation of Lord Vernon, on Thursday, September 15th.

By Sheridan Delepine, M.B. Edin., B.Sc.,
Proctor Professor of Pathology, Owens College.

Gentlemen,—Some months ago Lord Vernon wrote to me with regard to the work which is being done in his Sudbury estate and with special reference to his anxiety to free all the cattle on his farms from tuberculosis. It is well known that a considerable initial expense is attendant on carrying out such a plan. The difficulty is further increased on account of the well known tendency which practical men generally, and especially farmers, have to look with suspicion upon any new idea which is not in accordance with the practice of their predecessors. History acquaints us with the value of such arguments; if man had not from time to time risen above traditional practices we would have been deprived of the benefits of steam and electricity, or of sanitation, without speaking of greater boons still, such as the freedom of conscience and the impartial administration of justice which we enjoy under the British Constitution.

Tuberculosis is a disease which is acquired almost invariably after birth owing to the penetration in our organs of a minute parasite. We know now this parasite and most of the ways in which it can gain entrance into our body. This being so we should be able to defend ourselves by avoiding or destroying this enemy. I am convinced that if people could see the tenth part of what we students of disease have a too frequent opportunity of witnessing they would be convinced at once of the necessity of taking proper precautions against the disease. It is this conviction that has led me to accept the invitation which Lord Vernon has done me the honour to send me, and to give you a short account of tuberculosis and of the way in which milk may assist its spread. It gives me much pleasure to do what I can to assist Lord Vernon in his good work—work which is undoubtedly of great public importance. Many others might do it better than I can, but I will speak with the conviction which fifteen years of continuous pathological studies have given me. Many here are experts before whom I would hardly think it necessary to repeat what to most of them are truths firmly established; they must, however, excuse me if, keeping in mind the nature of the invitation given me by Lord Vernon, I address myself to those who have directed their activities to other fields than the study of disease. Perhaps had I known that instead of coming here to give some information to Lord Vernon's tenants I should have had to address such a gathering of distinguished experts, with Sir Wm. Broadbent in the chair, I should have accepted his lordship's invitation less readily.

Let us suppose that a few particles loaded with tubercle bacilli have been carried into the lungs of a person. These bacilli will, by means of the products which they secrete, produce irritation of the part and, if sufficiently numerous or active, they will rapidly cause the death of a few cells. Then a fight, first described by Metschnikoff, will follow during which some of the cells composing the tissues of the person attacked will surround the bacilli, take them up into their bodies, and digest them if they can. If the cells are sufficiently active and the bacilli not too virulent the microbes will either be killed or rendered harmless and, fortunately for us, this takes place in a large number of instances. When the fight is short nothing appreciable remains to show what has taken place. If the contest is more equally balanced a number of cells die, undergo caseous degeneration—*i.e.*, a kind of fermentation similar to that which takes place in ripening cheese—and a so-called cheesy nodule or tubercle is produced; this becomes surrounded by scar tissue and may gradually be infiltrated with lime salts. These cheesy or chalky nodules may remain in the tissues till the individual dies from some other cause. When they are found in the organs after death it is generally assumed that they indicate a victorious fight of the tissues against the microbes and for that reason these lesions are described as of "healed tuberculosis of phthisis." In many cases, unfortunately, the fight does not end so favourably. After being checked for a longer or shorter period the bacilli manage to multiply in the midst of the enfeebled or dead tissues. This takes place more specially when these tissues have been weakened by some

congenital vice of constitution or by some recent disease or unfavourable condition which has reduced the activity of the cells or killed many of them. As the bacilli multiply they extend beyond the margin of the area which they first invaded. Some are carried away by wandering cells which move in a system of channels and spaces permeating all our tissues and which are known as lymphatic spaces and vessels.

On the course of the larger lymphatic vessels there are organs known as lymphatic glands or ganglia through which the lymph is elaborated and, so to speak, filtered before it can pursue its course along the lymph-vessels. Before this lymph can reach the blood-vessels it has to pass through a number of these glands. Now, the bacilli contained in the wandering cells continue their fight and the diseased cells become arrested in the first lymphatic gland which they reach which is usually very near the point where the bacilli have entered the body. I have assumed that all the bacilli are carried along by cells. This may not be the only way in which they spread along the lymphatics. The fact, however, remains that they rapidly reach the lymphatic ganglia which are connected with the place where the bacilli have penetrated. They have now reached the second line of defence the fight is there renewed and in some cases the bacilli are checked and though they may produce extensive disease of the gland they are unable to go further. This form of tuberculosis of the lymphatic glands is generally known under the name of scrofular (one of the forms of the old king's evil), on which so much has been written. This form of disease has been lately thoroughly investigated in my laboratory by Dr. F. C. Moore, who has recently embodied the results of his experiments and observations in a most valuable monograph. Out of 26 cases of chronic enlargement of the glands, mostly of the neck, which had to be operated upon for various reasons, not less than 19—*i.e.*, a little over 73 per cent.—were found to be tuberculous.

Lymphatic glands are not the only organs which are liable to this chronic form of tuberculosis—bones and joints, for instance, are often affected in the same way. In a large number of cases, however, the bacilli pass beyond this second line of defence and, after overcoming a number of other glands, they may finally affect most of the lymphatic glands of the body. It is easy for me to demonstrate this process to you by a series of guinea-pigs inoculated with minute doses of tuberculous matter taken either from human or bovine lesions. Tuberculosis has a remarkable tendency to remain confined to the lymphatics and to certain internal organs for a comparatively long period. The spread of the disease along the lymphatics presents a remarkable peculiarity to which I attracted the attention of pathologists some years ago. After following the course of the lymph so closely for a time, that only those glands receiving lymph from the part infected become diseased, other glands not situated on the course of the lymph-stream become invaded as if the tuberculous process extended back against the lymph-current. Thus it is found that after the glands at the root of such organs as the lungs have become tuberculous those organs themselves usually become rapidly diseased. According to our expectations, based on current knowledge of the course followed by the lymph, the viscera should be affected first and the glands receiving the lymph from them should be affected last. I do not wish to trouble you here with a discussion of the nature of this phenomenon but its practical importance in connection with tuberculosis of the udder is evident. Whenever the glands receiving the lymph from the udder become affected the possibility of the udder being already diseased or about to be diseased should be considered even in those cases in which the udder appears on external examination absolutely normal.

The further stages of the disease are produced in two ways. Either the interference with important organs and the generation of poisonous substances by the bacillus or both combined cause a general state of debility and fever which ends in death or the disease becomes generalised by the bacilli penetrating in comparatively large numbers into the blood-vessels. One of the ways in which this takes place is by ulceration of the walls of some veins passing through or at the side of some tuberculous focus; tuberculous matter loaded with bacilli is thrown through the opening in the walls of the vessel into the blood-stream and is distributed to all the organs of the body. Wherever the bacilli get lodged they give rise to small centres of disease similar to those which I have already described. These lesions have the form of small nodules grey and transparent at first, becoming afterwards yellow in the centre owing to cheesy degeneration. Owing to their size being usually that of a millet-seed these tubercles are known as miliary tubercles. These tubercles may be found in all parts of the body and of course render all the tissues infectious; hence the danger of eating the uncooked flesh of animals in which tuberculosis has become general. It is for this reason that carcases of animals affected with general tuberculosis are invariably condemned by sanitary authorities. This form of the disease is rapidly fatal.

Out of 80,943 persons dying from all causes in London during 1897 in no less than 10,984 cases the death was registered as due to tuberculous disease. Out of these 10,984 cases 7864 are put down to phthisis. Though it is not proved that all cases dying from pulmonary phthisis have been infected through the air passages it is reasonable to assume that most of them have.

In the same way as bacilli are liberated from the lungs and scattered outside the body they are by the same process of ulceration set free in the intestine, in the kidney, in the mamma, and in subcutaneous lesions and pass out of the body with excrements, urine, milk, and purulent discharges. Now some of these products after becoming dry may infect fresh victims by contamination of the air just as dry tuberculous sputa have been shown to do. But with milk the case is different. It is through the intestine that tuberculous milk attacks the body. It has been denied that the consumption of tuberculous milk is attended with serious danger. I think, however, that there is a sufficient number of instances in which this danger has been proved by the actual occurrence of tuberculosis in children who have been fed on milk from tuberculous cows. By experiments on young animals such as kittens, rabbits, pigs, and calves, it is quite easy to produce tuberculosis by feeding these animals on tuberculous milk or other tuberculous products. Thirty years ago, that is about three years after Villemin had announced and admirably proved that tuberculosis was an infectious disease communicable from man to animal and from animal to animal (and not essentially a constitutional one as was then believed), Chauveau demonstrated experimentally that tuberculosis could be induced in cattle by feeding them on tuberculous products. Nearly thirty years have been necessary to allow public opinion to come to the conclusion that these men of science were right. In the reports of the last two Royal Commissions on Tuberculosis we find the following statement: "No doubt the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter. It is difficult to prove when a child dying from tuberculosis has been infected through milk because before the death occurs or the disease becomes manifest the milk supply may have often been changed and milk diet has often given place to ordinary diet. As I have said there are cases in which no such doubt exists and in which tuberculosis has been traced to the consumption of tuberculous milk. Lord Vernon and Dr. Livesay have informed me that they know of a farm where such a case has occurred. There are, however, very often clear indications in the body of the victim showing the channels through which the bacilli

have penetrated. We have seen how the bacilli infect first the lymphatic glands nearest to their point of entrance. The lymph coming from the intestine passes first through the mesenteric glands. The lymph from the lungs passes in the same way through the bronchial glands. It is therefore evident that in the event of the bacilli penetrating through the intestine the mesenteric glands would be chiefly affected and in the case of lung infection the bronchial ganglia would be most involved. There are cases in which death occurs before any other glands than those first invaded have had time to become diseased; in such cases the state of the glands will clearly indicate the channel through which the bacilli have entered.

In a series of over 300 experiments I have found that tuberculosis of the mesenteric glands occurs extremely late in guinea-pigs infected through other channels than the intestinal canal and the peritoneal cavity and am absolutely convinced of the value of lymphatic glands as indicators of the path followed by tubercle bacilli in cases which have died before the disease has become too advanced. According to Dr. Woodhead the post-mortem examination of the bodies of tuberculous children who had died before the age of five and a half years show that in the large majority of them the intestine and mesenteric glands were affected and that in 14 per cent. of those cases the mesenteric glands alone were tuberculous.

A very striking proof of the frequency of infection through the intestine fell under my notice six years ago. Dr. Simcock was investigating in my laboratory the pathology of chronic wasting of children due to improper feeding. He selected 13 cases out of many more in which there was no evidence of tuberculosis in the parents or in the various organs of the children as examined in the post-mortem room. He considered these cases free from tuberculosis. I was not, however, quite convinced. We carefully examined the mesenteric glands of all these children with the object of discovering whether some might not be tuberculous. In 2 of these cases the mesenteric glands showed clear tuberculous lesions under the microscope and in 5 more the mesenteric glands presented lesions suggesting the possibility of incipient tuberculosis.

The presence of two clear cases of tuberculosis among 13 cases carefully selected as free from tuberculosis is specially significant. It is also interesting to notice that the only clear lesions were found in children over ten months of age, as will be seen in the following table:—

Children Dying from Chronic Wasting with no Clinical or Post-mortem Naked Eye Evidence of Tuberculosis.

No. of Case.	Age of Children.	How long after birth suckled by mother.	Lesions in Mesentsric glands.	
			Indefinite.	Tuberculosis.
6	3 months.	Not at all	0	0
1	3½ ,,	1 month.	Slight.	0
2	3½ ,,	2 weeks.	Slight.	0
7	4 ,,	2 ,,	0	0
8	4 ,,	2 ,,	Slight.	0
4	4 ,,	A few weeks.	Slight.	0
5	4 ,,	Not at all.	Slight.	0
9	5 ,,	1 month.	0	0
10	6 ,,	2 months.	Slight.	0
11	10 ,,	3 ,,	0	0
13	10 ,,	Not at all, cow's milk from first.	—	Well marked
12	11 ,,	2 weeks.	Slight.	0
3	18 ,,	3 months.	—	Distinct

Out of 4 children above ten months 2 were tuberculous. These numbers are too small to allow one to generalise from them. but they assist us to understand the statistics referring to infant mortality. If we now compare with these results the returns given by the Registrar-General in his annual summary for 1897 we find that it is during the first years of life that most deaths attributable to tabes mesenterica, scrofula, and forms of tuberculosis other than pulmonary phthisis occur. In the case of phthisis it is between the twentieth and the sixtieth year that the greatest number of deaths takes place.

It is therefore clear that if infection through the air passages is well proved to be the most important cause of phthisis, the same mode of infection is not equally at work in the production of other forms of tuberculosis. Of the deaths from tuberculosis which occur during the first year of life very few occur during the first ten weeks. On the other hand they become very numerous as soon as children reach the age of six months, at which age a very large number of them have been fed for three, four, five or even six months on cow's milk. We have also abundant observations to show that calves are exceedingly rarely born tuberculous. A few cases have been reported by various observers. Only three such cases have come under my own observation and I have been able to investigate only one of them thoroughly, through Mr. Holburn's kindness, and found that one half of the uterus of the dam was in an advanced state of tuberculosis, a lesion of the uterus which is of rare occurance. This instance shows only the possibility of the fœtus being occasionally infected by the womb, which is a very different thing from hereditary transmission. We have also the results of the inspection of a very large number of calves, heifers, oxen, cows and bulls. The statistics collected by various observers shows that whilst it is difficult to find districts where as many as 2 calves in 1000 are affected with tuberculosis, it is, on the contrary, unusual to find out of the same number less than from 400 to 500 animals over one year old in a state of more or less advanced tuberculosis (see statistics quoted in Report of Royal Commission, 1898). The results of the testing of 39 head of cattle on Mrs. Ashton's estate at Ford Bank, near Manchester, are very instructive in this respect. After discussing the matter with me Mr. G. Ashton determined to have all the cattle kept at Ford Bank tested with tuberculin, all the animals reacting isolated at once, and those not reacting placed in disinfected stables. The diseased cows were to be replaced only by others which would have been proved by the tuberculin test and careful veterinary inspection to be free from tuberculosis. This was carried out by Mr. Locke and by Mr. King with the assistance of Mr. Holburn. Mr. G Ashton has very kindly allowed me to make use of the results obtained, being himself very anxious to investigate the whole question.

Results of the Testing by Tuberculin of 39 Head of Cattle at Ford Bank, Didsbury, near Manchester, 1898.

—	Positive reaction	Negative reaction
5 calves, from 3 to 6 months old born on the estate, 4 of tuberculous dams, 1 of healthy dam	0	5
1 heifer, 12 months old, born of healthy dam	0	1
12 heifers, about 2 years old	2	10
3 bullocks, from 18 months to 2 years old	3	0
1 heifer, 2 years and 9 months old ..	1 slight	0
5 heifers, 3 years or a little more ..	3	2
3 milking cows, from 3½ to 4½ years	2	1
6 milking cows (one 5 years old and five 6 years old)	3	3
3 milking cows, one 'aged,' one 7, and one 8 years old	3	0
	17	22

These results give the following distribution of tuberculosis in cattle according to age :—

	Tuberculous.	Not tuberculous.
Under 1 year (5 cases tested)	0	5
One year and under 3 years (17 cases)	6	11
Three years and under 5 years (8 cases)	5	3
Five years and over (9 cases)	6	3
	17	22

Having now given evidence to show that the prevalence of tuberculosis in the young is in most cases due to infection, and that in man this mode of infection is responsible for a considerable loss of young life, I wish to say a word more as to the influence of hereditary tendencies. If children or young animals are extremely rarely born tuberculous, how are we to account for the fact that the disease so very often attacks member after member in the same family? There are two factors which account for this : (1) the children of diseased parents are often weak at their birth and their tissues are less able to stand the fight against the bacilli when these gain entrance into the body than stronger children would; and (2) they are born in infected places and often nursed for a considerable time by persons affected with tuberculosis. Thus these weak individuals, who should be more than any others protected against the risk of infection, are by the fact of their birth in an infected family or house more exposed than stronger children would be. We know, however, for certain that by preventing infection after birth the children of tuberculous parents may be made to escape tuberculosis entirely. The same has been proved over and over again with regard to cattle. The statistics given previously show that infection takes place chiefly during the first year, at a time, therefore, when a large number of children are fed on cow's milk partly or entirely. It has been proved abundantly that by feeding them on tuberculous milk it is easy to produce tuberculosis in most kinds of young domesticated animals.

Can we find any evidence in the milk itself of the presence of the tubercle bacillus? And is the occurrence of the bacillus in milk sufficiently frequent to justify any serious fears in connexion with the use of this article of diet? In dealing here with this question I suppose that results obtained in this part of the country will prove specially interesting. I will, therefore, make use only of the data obtained in my laboratory and relating to milk coming chiefly from various farms situated in the counties of Derbyshire, Lancashire, and Cheshire. The observations I am going to relate were mostly made in the course of investigations instituted by Dr. Hope, the medical officer of Liverpool, and Dr. Niven, the medical officer of Manchester. Dr. Hope's object was chiefly to ascertain what proportion of the milk reaching Liverpool in various ways was tuberculous. He had samples of milk taken at railway stations and various town dairies and sent to various bacteriologists to be examined for tubercle bacilli. Some 50 samples were sent to me in this way.

In Manchester, where I had often the opportunity of discussing the matter with my colleague Dr. Niven, we came to the conclusion that a complete investigation should include (1) the examination of milk from cows certainly tuberculous, with and without tuberculous udders; and (2) that of milk from farms or various parts of the country and also of milk obtained from town byres and dairies. Dr. Niven's object, like that of Dr. Hope, was to find out how much tuberculous milk was used by town consumers in order to ascertain exactly the extent of the danger. Through his kindness, however, I was able to obtain information collected by the chief veterinary inspector, Mr. King, and his assistants, as well as notes regarding the situation and condition of the various farms or dairies from which milk was obtained. In addition to the samples sent to me from Manchester and Liverpool I have obtained myself a number of samples from healthy or diseased cows. During the last four years, and chiefly during the last two, I have thus had to examine some 208 samples of milk, of which 7 were from cows not known to be tuberculous; 22 were from cows nearly all in an advanced state of tuberculosis; 54 were from town dairies; and 125 were from country farms being collected by sanitary inspectors at the railway stations immediately on arrival of the cans from the country. Time does not permit me to describe the methods which I used in this investigation. I have described them in other places. It will suffice to say that all these milks were (1) collected in sterilised vessels and rapidly examined on their arrival at the laboratory; (2) the colour, reaction, specific gravity, and proportion of cream and sediment were noted; (3) the sediment (or slime) and often the cream were separated by centrifugalisation and examined microscopically for dirt, morbid products, various cocci, bacilli, vibrios, yeasts, and moulds; (4) guinea-pigs were inoculated with small quantities of sediment, and, after their death, dissected in order to find whether any lesions had been produced; and (5) the lesions produced in the guinea-pigs were further examined in various ways for the purpose of finding out whether they had been produced by the bacillus tuberculosis or other microbe.

I need not say that an investigation of this kind implies a considerable amount of work. The first half I carried out mostly alone, but in the second half I have had considerable assistance, more especially from Dr. E. J. Sidebotham, and also from Dr. Moore, and lately from Dr. Carver. I have taken the greatest care from beginning to end to avoid as far as possible any source of fallacy. I may tabulate the results obtained as follows :—

A.—Unmixed Milk collected in Sterilised Bottles direct from the Cow with care to avoid Dirt.

1.—Cows showing no evidence of Tuberculosis.

	Actual No. of samples.	Per cent.
1. *a.* Innocuous milk	6	85·68
b. Milk causing slight local irritation of the tissues near the point of inoculation	1	14·28
2. Milk causing severe œdema, ulceration, or suppuration at the seat of inoculation (local infection) or at some distance	0	0·0
3. Milk causing general infection, rapidly fatal (from 24 to 48 hours after inoculation)	0	0·0
4. Milk causing tuberculosis	0	0·0
	7	100

2.—Cows showing Distinct Evidence of Advanced Tuberculosis, Udder Diseased in 8 cases and Suspicious in 8 others.

	Actual No.	Per cent.
1 Innocuous	10	45·40
2. Local infection, etc.,	6	27·24
3. General infection, etc.	0	0·0
4. Tuberculosis*	6	27·24
	22	99·88

* In all these cases there was evidence of disease of the udder.

B.—Mixed Milk collected in Sterilised Bottles from Milk Cans.

3.—Town Dairies (Liverpool 50 samples).

	Actual No.	Per cent.
1. Innocuous	33	61·05
2. Local infection	13	24·05

3. General infection	5	9·25
4. Tuberculosis	3	5·55
	54	99·90

4.—Country Dairies (Milk collected at Railway Stations in Liverpool and Manchester—Manchester, 93 samples).

	Actual No.	Per cent.
1. Innocuous	70	56·0
2. Local infection	21	16.8
3. General infection	12	9·6
4. Tuberculosis	22	17·6
	125	100

The meaning of these results is very clear. 1. The milk of non-tuberculous cows does not produce tuberculosis. 2. The milk of at least 1 out of every 4 cows much affected with tuberculosis is capable of communicating tuberculosis. 3. The milk coming from country farms which are not under the constant supervision of the health authorities is capable of communicating tuberculosis in 17·6 per cent. of the cases examined. A little more than 1 sample out of every 6 examined proved infectious. This comes from the extreme prevalence of tuberculosis in the country and of the mixing of tuberculous milk with good milk. Dr. Rivers informs me that after receiving the results of my examinations he asked Mr. King to visit the cowsheds from which milk had come which had been found tuberculous. Mr. King found that in all these byres (18) but one there were cows with diseased udders, which, as far as it was possible to ascertain by clinical examination, were probably tuberculous. 4. In towns, such as Liverpool, where cowsheds are under constant supervision, the number of cases in which the milk proved to be infectious was considerably less, being reduced to 5·55 per cent. About 1 sample out of every 17 was found capable of producing tuberculous infection. This shows conclusively that improvement may be obtained by using proper measures, but the sanitary authorities have not so far been able to remove entirely the evil. I wish to point out also that milk is capable of producing serious troubles other than tuberculosis. This is specially true of mixed milk, which, whether it comes from the country or from the town, is capable of producing a very serious form of infection—in fact, a septicæmia in some 9 per cent. of the cases examined. In addition to this from 16 to 24 per cent. of the samples are capable of producing considerable irritation of the tissues.

You may ask whether inoculation of milk into the tissues is a proper test to apply in estimating the value of an article of food which in the natural course of things has only to pass into the alimentary canal. I have not asserted that all the samples of milk which I have found to produce disease when injected into the tissues would necessarily have produced disease in the human subject, but what I intend to convey is that unsound milk has properties which are not present in good milk and that these properties are of a dangerous nature. Milk may be obtained which is capable of standing the test and we have seen that milk when collected so as to avoid dirt, and kept under conditions not favouring the multiplication of bacteria, never produced a general infection rapidly fatal. This being the case there seems to be no necessity for allowing milk with unpleasant properties to reach our markets. The fact that about 60 per cent. of the milk supplied by our dairies is perfectly innocuous shows that it is not impossible to supply absolutely wholesome milk. Whether therefore the tests I have used are severe or not they show that milk of two distinct qualities is sold to the consumer: (1) milk which cannot produce any form of disease even under the conditions most favourable to the production of disease; and (2) milk which under the same conditions produce various forms of disease, some extremely severe. I think everybody will admit that this second quality is not desirable. After considering the danger let us consider the remedy.

On a previous occasion I have expressed an opinion as to the public measures which seemed to me to be necessary for dealing adequately with tuberculosis from the public and administrative point of view and I can only repeat now what I said then.

I. The first general measure which can be recommended for the purpose of combating tuberculous infection through milk is in the hands of the consumers; it consists in boiling all the milk used. There is a strong prejudice against this boiling of milk. For my own part I think the defects of boiled milk have been exaggerated. I know families who on my recommendation have drunk nothing but boiled milk (except for tea) for the last 12 or 13 years. I have watched children who have practically never drunk any unboiled cow's milk from the time they were weaned to the present day—i.e.., in one case over 12 years and in the other case a little less—and these children have never suffered from the use of boiled milk and prefer it to unboiled milk The great objection, however, to this easy remedy is that it does not protect us against tuberculous cream, butter, and cheese. Nor does it mitigate the dangers of infection due to the presence in our midst of so many tuberculous animals and the losses caused to the farmers by tuberculosis.

2. A second method of dealing with the milk so as to protect the consumer is to analyse samples from time to time and to reject from our markets all milk which is not free from infectious properties. This method is not a practical one; it is easy to detect common adulterations by simple chemical tests, but it is another thing to find out whether a sample of milk can produce tuberculosis or not; this may take days and meanwhile the consumer is not protected. This method can only be used for the purposes of checking other preventive measures and for that purpose it will always prove a useful adjunct.

3. We must turn to the actual source of milk—i.e., to to the cow—and see that it is not allowed to contaminate our milk supply. This means systematic inspection of our cowsheds and milch cows by competent men able to detect tuberculosis even before it has produced symptoms obvious to all. A careful veterinary surgeon can now by the application of the tuberculin test combined with a thorough inspection almost always determine whether a cow is tuberculous or not.

As it is impossible to say when the udder of a tuberculous cow will become diseased, the untreated milk of all tuberculous cows should be excluded from the market.

After being sterilised by boiling or otherwise, this milk might still have a good commercial value. This method of inspection would free our markets from the greater part of the tuberculous milk which at present reaches them, yet this would do little towards stamping tuberculosis out. Tuberculous cows and tuberculous sheds would still remain a source of infection. It would therefore be necessary to (1) separate the tuberculous cows from the healthy ones; (2) to fatten all tuberculous cows for slaughter whenever the disease has not reached serious proportions and slaughter those in which the disease is advanced; (3) to disinfect thoroughly infected sheds; and (4) to improve their construction so as to allow of their being thoroughly cleaned, lighted and ventilated. These measures, although they would deal efficiently with tuberculosis as it exists at present, would certainly not prevent the action of fresh sources of infection.

4. This makes it evident that steps should be taken to prevent the introduction of tuberculous cattle into any county where it was desired to deal efficiently with tuberculosis: (1) all cattle brought into the county from neighbouring counties or from abroad should be examined first by veterinary surgeons acting under the direction of some central county sanitary authority; (2)

all cattle kept in the county should also be registered and marked, so that it should be easy to ascertain which animals have been registered, inspected, and tested; (3) all cowsheds should then be inspected at least twice a year and the few tuberculous animals which would have escaped previous inspection weeded out; and (4) the breeding of healthy cattle should be encouraged and calves fed on sterilised milk would be easily protected against chance of infection if the preventive measures above mentioned were taken.

5. The presence of tuberculous servants should not be tolerated either in the sheds or dairies. Milk pails and cans should be kept scrupulously clean. Of all the measures I have mentioned two seem to be essential: 1. The systematic and periodical inspection of cowsheds and herds for the purpose of weeding out tuberculous animals. To be efficient such an inspection should be thorough and include all the cattle kept within definite administrative areas. For the first year or two compensation should be given to the farmer for the losses incurred except in cases of gross or culpable neglect on his part. After this transitional period the presence of a case of advanced tuberculosis in a cowshed should make the owner liable to a penalty. 2. The testing of all cattle brought into, say, a given county, so that fresh sources of tuberculosis should not be introduced. If such methods were adopted it would then be only right to see that foreign dairy produce is not allowed to flood our market unless good guarantees were obtained that proper measures have been taken to safeguard the consumer.

It does not seem probable that general measures of the nature I have described are likely to be carried out in England for some considerable time to come, and probably the work will be left to private initiative. This will render the stamping out of cattle tuberculosis a much slower process than it might otherwise be. It seems to me, however, that work like that done on Lord Vernon's estates if carried out in various parts of the country must ultimately induce a general demand for wholesome milk, which demand will probably be supported by better prices. This demand will ultimately force the farmer to free his stock from all diseased animals, collect the milk and forward it under conditions which will insure the safety of the consumer. At the present time there are only a few who realise the importance of this, and to obtain pure milk the dairy owner must pay higher prices for pure than for impure milk. The consumer should certainly take his share of the expense. Dr. Livesay, who has so ably directed the work done at Sudbury, informs me that a number of farmers on the Sudbury estate have agreed to submit to certain regulations ensuring the exclusion of tuberculosis and purity of the milk. And as compensation the farmer receives 1d. more a gallon for this tested milk than he would for ordinary milk. I think the time will come when this inducement will be unnecessary, for the exclusion of tuberculosis will be found to be a source of profit instead of being one of apparent loss, as it seems to be at present.

We have seen that the proportion of cows affected with tuberculosis increases rapidly with age. After the age of three—that is, so soon as cows become useful for breeding and dairy purposes—it is not an exaggeration so say that more than half of them are under the present conditions doomed to become tuberculous. And of this half a certain proportion will rapidly reach the wasting stage, after which they will lose much of their value, if not the whole, as beef producers. Now a young cow with slight tuberculosis properly fattened has a very good value as beef. Were it sold to the butcher at the proper time and replaced by another cow free from tuberculosis the immediate loss to the farmer would be the difference between the price of the beef and of the milking cow. But had the farmer waited longer he would have had a possible loss due to the diminished quantity and lowered quality of milk (for a time the milk production is often not unfavourably affected by tuberculosis) and when ultimately he found it necessary to have the cow slaughtered on account of advancing tuberculosis the value of the cow as beef would have considerably diminished or entirely vanished. In addition to this each tuberculous cow is capable of infecting a number of other healthy animals. Therefore by having his cattle slaughtered as soon as tuberculosis becomes evident the farmer is exposed to an immediate loss which is probably smaller than the prospective loss he would incur did he keep the tuberculous animals.

On the other hand, after having had his tuberculous cattle slaughtered and his stable thoroughly disinfected he may arrange to buy none but cattle which have been certified by competent veterinary inspectors to be free from tuberculosis. He may have to pay a little more for cows bought under these conditions, but the ultimate value of his stock will be considerably increased, for only a small number of his cattle will develop a slight degree of tuberculosis, and this being detected in time will not cause him any serious loss.

In the fight against tuberculosis in cattle by private enterprise unsupported by the State it seems to me that the following lines are clearly indicated:—

1. Healthy cowsheds, well lighted and ventilated, easily cleaned, arranged so as to separate the animals as completely as possible from each other and to prevent the food and litter of one from being contaminated by others. Good water-supply. After discovery of a tuberculous animal thorough disinfection of its stall and if possible of the whole shed.

2. Isolation sheds of the same kind for cattle found to be affected with a moderate or slight degree of tuberculosis.

3. Stalls well isolated from the others might be provided in this shed for animals which have not been tested and have to be kept in quarantine until tested, or better still a special testing shed frequently disinfected might be provided.

4. Immediate slaughter of all cows in an advanced state of tuberculosis.

5. Fattening of cows with moderate tuberculosis, these cows not to be allowed to come again at any time in contact with the healthy ones.

6. Any dairy produce from these tuberculous cows to be sterilised. If butter be made the cream should be treated for some time at 85°, which does not interfere with the making of good butter (Bang). Tuberculous cows should, however, be fattened as soon as possible and their milk used as short a time as possible.

7. Tuberculous cows with tuberculous udders are usually in a state of advanced tuberculosis, but in any case a cow with tuberculous udder should be slaughtered at once.

8. All calves to be fed from the first on sterilised milk. The thoroughly sterilised milk of tuberculous cows might be used for this purpose.

To avoid the other sources of deterioration which I have mentioned:

9. The udder and milkers' hands should be kept absolutely clean.

10. The milk cans or pails should be washed with boiling water or sterilised by steam.

11. The milk should be cooled immediately after being milked and its temperature kept below 40° F. until it is treated in the dairy (by filtration, separation, sterilisation, &c.).

12. Milk which has not been sterilised and which has to be sent by rail from the dairy to a distance should be kept by packing in ice or otherwise at a temperature below 40 F. if possible, until it reaches the consumer. The same precautions with regard to cooling apply to

all milk which cannot be consumed within a few hours—say 8 or 10 hours at the most—from the time of milking.

13. The authorities should be asked to regulate the importation of foreign milk and dairy produce with the view to ensure that the precautions above mentioned have been duly taken to ensure the wholesomeness of these products.

14. The authorities should be asked to find the means to prosecute and punish adequately all kinds of neglect rendering milk dangerous to health so as to place the farms and dairies where proper precautions are taken on a fair footing in the general competition.—*The Lancet.*

THE LATE CAPTAIN HASLAM.

The "*Times of India*" of August 27 publishes the following from a correspondent:—As may be expected from uncivilised unfortunates, such as the wild tribes of East Africa interior, occasional troubles arise which necessitate the sending out of a force to coerce the belligerents and bring them to a reasonable state of passive submission to their superior brethren who have come to the country to improve and civilise it. Such was the case the other day in the district round Machakos, in British East Africa, when an expedition had to be sent out from that station under its officers against a tribe of people styled the Wakikuyu, inhabiting the Maruka country that extends to the slopes of Mount Vienia. While these troubles were on a sad and terrible ordeal fell to the lot of an European official of the Uganda Railway while out on a quiet shooting excursion. Captain A. J. Haslam, A.V.D., who was formerly in India, where he is well known, was sent out to East Africa by the Foreign Office to organise a transport service in connection with the Uganda Railway construction, which he has since carried out most successfully. The outbreak of rinderpest in the interior, as well as the investigation of the tsetse fly question, necessitated his visit to those districts to institute reseaches. He reached Machakos towards the end of June, and left again on the 4th July, proceeding further inland and inspecting the cattle in the principal villages in the district. He had reached Kairobi, on the Uganda road, and, desirous of a little relaxation, went out for a couple of days' shoot along the banks of the river Athi in quest of big game. He took with him six mules and half a dozen attendants, three of whom were Indians, and worked his way to Donny-sa-brook. Being a perfect stranger, he unfortunately got into the country of the hostile Wakikuyu, who on seeing a white man immediately surrounded him. Captain Haslam saw his mistake too late, and naturally took the only alternative —self defence. His attendants, save his daffadar, deserted him. All these two had to defend themselves with were two rifles, with only seven rounds of ammunition left, and a charged revolver. These were soon expended when the Wakikuyu closed in on him and took him and his daffadar. The last seen of Captain Haslam was the poor man standing defiant, firing at the enemy with his revolver, and an arrow through the upper part of his left fore-arm. The blacks were in hundreds, and eventually captured Haslam and his man, regarding whose safety the gravest doubts are entertained. Relief and seach parties are out in quest of the unfortunate gentleman, but up to the present no trace of either Haslam or the man has yet been fouud. Another punitive force has been sent out under the Europeans, who are having a busy time of it. The news of the disaster was brought by eye-witnesses (Captain Haslam's own men, who deserted him), who state that the occurrence took place on the evening of the 17 July.

"Since writing to you anent the rumours concerning Captain Haslam, it is with the deepest regret I have to inform you that our suspicions were too horribly confirmed. Captain A. J. Haslam, after being taken by the Wakikuyu, was murdered by them on the 17th July, as also were two others of his party, one of which was an Indian jemadar. The bodies were recovered a little distance beyond Donny Sabruk (near Machakos). The remains of the late Captain Haslam were interred with military honours close to where they were found, the Soudanese troops of the Machakos garrison forming the guard of honour and firing party. The sad affair has cast a gloom throughout East Africa, where, apart from being a very useful and energetic officer, Captain Haslam had proved himself a general favourite wherever he went. No doubt his brother officers of the 16th Lancers will learn the news of his sad end with heavy hearts, for whilst attached to that regiment there also he proved himself a favourite. Judging from the innumerable bullet marks in the ground round where he fell, we have come to the conclusion that Captain Haslam stood his ground to the last, when, his ammnnition running out, he was overpowered by the horde of savages who poured down upon him. A large punitive expedition is still ravaging the country to avenge his murder, which will have to be dearly expiated.—*The Manchester Guardian.*

REVIEW.

CATTLE TUBERCULOSIS.

This little book of 75 pages is called a "Practical guide to the farmer, butcher, and meat inspector." It is all it claims and a good deal more. Although we strongly dissent from some of the authors' conclusions we can recommend the work to veterinary surgeons and local authorities. It is right to study all sides of a case, and the facts given by Dr. Legge and Mr. Harold Sessions are plentiful and reliable.

The "Symptoms of the disease" are clearly and concisely described. The next chapter is devoted to "measures of prevention." A brief summary is given of the legislation that has been enacted in other countries, and then the authors pass on to show what can be done by voluntary effort on the part of farmers. The steps to be taken are such as we can all approve, but of course the effect is almost entirely confined to the farm affected. We read: "The means which a farmer can adopt under present conditions will go far to check and lessen the disease, and the means which the state can adopt will help still further to eliminate the disease."

On page 33 we find how the authors think the State can aid. From this we gather that all new buildings should be larger and more airy. Sufficient light and ventilation should be insisted on. Tuberculin should be supplied direct from Government. All animals tested should have a tag put in the ear. Reacting animals should be separated. Driving a diseased animal along a highway should be made a penal offence. With all these we agree, but such regulations cannot be left to voluntary effort, and the logical conclusion is to schedule the disease in the Animals Diseases Act. Suggestions are approved for the inspection of cowsheds, and the removal of all cows suffering from tuberculous disease of the udder. On page 24 is a statement showing the

necessity of scheduling tuberculosis as a disease of animals—"In this country hitherto local authorities have had no powers for controlling the danger to man from the sale of milk of tuberculous cattle, even when the udder is diseased. The Dairies, Cowsheds, and Milkshops Order, 1885. . . . . states that if at any time disease exists among the cattle the milk shall not be used for human food. Unfortunately this cannot be stretched so as to cover tuberculosis, since that disease was not included in the Contagious Diseases (Animals) Act under which the Order was issued."

This condition of affairs is so dangerous and so easily altered that one can only wonder that the Board of Agriculture should delay a single day in scheduling the disease. A few days ago the President of the Board of Agriculture attempted to apologise for his department's remissness by saying that the Local Government Board should first schedule human tuberculosis as a notifiable disease. There are very great difficulties in compulsory notification of human tuberculosis, there are none in requiring notification of cattle tuberculosis. Surely if only to give power to prevent milk from tuberculous udders being swallowed by human beings, the scheduling of cattle tuberculosis is demonstrably necessary.

The last paragraph of the chapter on prevention is as follows, and it further shows the folly of attempting to rely on voluntary effort:—"To attempt to get rid of tuberculosis without regulating the conditions under which cows are kept, where they are forced for milk production, will fail of its purpose. The way in which tuberculosis is and has been largely spread is through the sale and turning out to grass of cows which have been stall fed for some years and are badly affected with tuberculosis. After a time they improve again, and at their next calving are re-sold into another dairy herd, carrying the contagion with them. This can only be prevented by regulating the sale of such animals." Quite so! and this again shows the necessity of scheduling the disease in the Animals Diseases Act as a first move in the campaign.

Meat inspection is very fully dealt with, and the various methods pursued in other countries are detailed. The authors either do not believe in compensation or they have such respect for the opinions of the Royal Commission that they seem unable to believe Parliament will provide compensation when it orders seizure of tuberculous carcases. They therefore enter very fully into a system of mutual insurance to be adopted by butchers and farmers. To us this appears as cumbersome and round about way of providing compensation as could possibly be invented. There are in Britain one or two insurance societies or clubs of this kind, but they are not likely to increase.

Why a butcher should lose on a diseased animal at all we fail to see. He buys an apparently healthy beast from a farmer who has had every opportunity to know its condition. He cannot test the animal himself and yet he is held responsible for its hidden defects. It is right to protect the public from diseased meat, but the person who should be held responsible is the man who produced it and who could decide its real condition—the sufferer should be the farmer, not the butcher. In France, Austria, and Germany the farmer, not the butcher, suffers the loss from seizure of a carcase that fails to pass the meat inspector. Why we should not be as just as other nationalities is difficult to see.

Although we differ with the authors about compensation, and although we think they place too much reliance on voluntary effort and too little on State regulation, we strongly recommend their book to all veterinary practitioners. Every page is interesting or suggestive reading; it is full of facts, and is most opportune now that all classes are keenly watching the development of preventive action. Veterinarians have held a good lead on this question. If they desire to keep it they must be in possession of all the latest ideas, and this little book supplies them.

Messrs. Bailliere, Tindall & Cox are the publishers and the price is only 2/6 nett.

The late Capt. Haslam.

Details reached Portsmouth yesterday (21st) from Kikuyu, British East Africa, under date August 7th, of the murder of Captain Haslam and the subsequent punitive expedition. Captain Haslam started from Nirobi, 10 miles from Kikuyu, in the early part of July to join Captain Cooper's expedition, taking with him a few mules and 30 porters and servants, but only a few rounds of ammunition. On July 16, when 50 miles from Nirobi, he was attacked by the inhabitants, who fired poisoned arrows at him. Having only three rounds of ammunition left he fired two as warning shots, but he was surrounded and killed. Most of his men escaped, and the news of the tragedy was brought to Kikuyu on July 18. A punitive expedition was organised under Captain Marshall, comprising 150 native soldiers and 15 European officers and sergeants of the Unganda Rifles. Three forced marches of 20 miles per day brought them to the spot where Captain Haslam's body was left. His mules were dead and his boxes looted. After caring for the body the expedition proceeded to attack the tribe, who lived in hundreds of little villages in the hilly districts five miles distant. The punitive force divided into three companies. On their approach the natives fled, leaving their cattle. The expedition remained five days, destroying the villages. The natives only made one stand, and were then repulsed, their loss being 100 killed and 50 women and children taken prisoners. On the British side only one native servant was killed. The expedition returned on the 31st., and the remains of Captain Haslam were interred with military honours.—*The Times.*

Tomkins Remonstrates.

(It has been announced in the daily press that a scientist has succeeded in producing albumen by synthesis in the laboratory.)

A awtful combernition, thet's whort this 'ere science is,
Fur undersellin' nychur in 'er speshul line o' biz;
When each egg corsts a 'ipen'y tu the ackshall bloomin' 'en
Science knocks art compertition with a penny fur the ten.

This litest, nar, is ser'us; butcher's luck is pretty steep
When the scientific cutlet 's inderpendent of the sheep.
When perfessors turns art sirloins by a sort o' pi tent fake
In 'arf the time thet nychur tikes tu grow a parnd o' steak.

Ah! I looks intu the foochur, and the foochur's chymists shops,
With perscriptions fur yer trarsers an' with recipes fur chops,
Wheer nuthink isn't whort it is—yuss, that my chief cormplaint—
And ev'rythink's mide up o' sev'ral other things it ain't.

Daily Chronicle.

CORRESPONDENCE

A CASE OF CRUELTY.

Dear Sir,

I am sending you the following notes on a case of cruelty (?) knowing that it will be of interest to the readers of your valuable journal:

On September 1st a horse belonging to a client of mine was stopped by an inspector of the R.S.P.C.A., in Clerkenwell, the carman and horse were taken to the police station, and there the man was charged with cruelly illtreating and torturing a roan mare while working it in an unfit condition, and the horse was examined by the Society's veterinary surgeon who corroborated the inspector in all particulars. The inspector stated that the animal had a suppurating sore on the off shoulder, and an old wound on the wither, and was very lame of the near hind limb from ringbone. The following day the owner received a summons for cruelty, and doubting the existence of lameness or ringbone, or any cruelty with regard to the sore shoulder, asked my opinion. I gave it that the animal was not lame of the near hind limb, neither had she any ringbone, and as she was wearing a breast collar there could be no cruelty in working her with the small sore on the shoulder, and the sore on the withers was quite recent and caused by the strap of the breast collar.

At the Police Court my evidence as above was contradicted by the Society's officer and his veterinary surgeon, who also stated that the said ringbone on the near hind coronet was so large that *anyone* could *see* it. The Magistrate decided that another veterinary opinion should be taken, and a well-known expert from London journeyed down to Enfield to report on the animal. His opinion on oath was, that the animal was slightly lame of the off fore limb, that there was no signs of ringbone nor any lameness of the near hind limb; that the mare had had a bad shoulder, that the injury to the wither was slight and recent, that she might do slow work but should not be trotted (she was a cart horse).

The Magistrate dismissed the case.

The animal was also seen by another well-known veterinary surgeon here who agreed with me that there was no ringbone and no lameness or other defect that would prohibit the owner from working the animal.

Every day we see convictions for cruelty in the papers in which the prisoner does not call any professional evidence in his own behalf. Is the diagnosis of the Society's officers often as correct (?) as in the above case.—Yours faithfully,

ALEXANDER A. JOHNSON, M.R.C.V.S.

[Yes, very often.—ED.]

THE EXAMINATION IN MATERIA MEDICA AND MR. WARTNABY'S MOTION.

Sir,

I shall watch the fate of Mr. Wartnaby's motion with interest and curiosity. It is just six years since the present syllabus was passed by the Council after prolonged discussion and conference with the then board of examiners and teachers. An attempt was then made to so arrange the oral examination on this subject that the students could be practically tested in recognition, dispensing, the art of prescribing and prescription writing, but the motion was swamped by an overwhelming majority, indeed a very small minority of the Council favoured the proposal. All sorts of arguments were adduced against the proposal, and according to the then temper of the Council I can assure Mr. Wartnaby it would have been easier to delete materia medica and substitute for it an extended knowledge of school botany than get a practical and reasonably thorough examination on materia medica and pharmacy.

Mr. Wartnaby has my best wishes for success in his laudable attempt to secure for the future members of our profession a reasonable amount of knowledge of every-day utility, on the subject of all others upon which, I think, it goes without saying that the present members as a whole are badly informed, and in no inconsiderable numbers are shamefully ignorant.—yours truly,

J. DONALD.

EMERGENCIES AND IMPROVISATION.

Sir,

Every man, I take it, (unless a born idiot) is possessed of a certain modicum of the body tissue known as brain; also of a small proportion (I will not say the abundance possessed by "Senex") of the quality known as common-sense.

That being granted, and I think no one will dispute it, I naturally felt hurt, and I might say insulted, on picking up *The Veterinary Record* and finding in it an article under the heading "Emergencies and Improvisation" which quietly assumes that a good many of us are lacking in these two very useful and necessary commodities.

There is a sentence on the first page of the same issue of your valuable journal which says "All men think all men mortal but themselves." If that is so (which I very much doubt) then there is every excuse for Mr. "Senex."

Probably the gentleman is fashioned from very different clay from that to which we poor humble mortals may lay claim. If such be the case then I have every reason for saying that, in my opinion, a man descended from such immortal source should never on any account have been allowed, or allowed himself, to sit in judgment on some poor erring lump of human mortality.

Take one of the questions submitted by him to a poor, trembling weight of human frailty at a practical examination—by-the-bye I should have been much better pleased if he had condescended to say at *what* practical examination, for if I remember rightly I can well recollect some such conundrum being propounded at one of the examinations held by the Royal College of Veterinary Surgeons. The riddle was as follows: "How would you get up a horse with a 'chinked' back if you had no slings, no cart shafts or waggon rods, and no ropes?"

Can you, Mr. Editor, (I think you can) imagine the blank stare of the poor candidate. He has probably gone up for his examination fully primed with the latest developments in bacteriological science, the theories and practice of medicine, the last new surgical exploit, or the latest addition to his already overcrowded materia medica.

What must be the thoughts flitting through the tissue in his cranium? Can we imagine them? If not perhaps we may draw some mental picture of his attitude before the examiner, and hear the conversation between the two.

"No ropes! No slings! No shafts nor no rods?
No sir!
No ropes sir?
No!
Lever him up with a pole?
No sir!
No judicious application of the whip?
No sir!
Nor the quiet setting on of a dog, sir?
No.

(Student here stands scratching his head, musing to himself. What's the matter with me? Have I gone off

my blooming onion, or is this old doddler a blithering idiot? Suddenly a new thought strikes him.)

"Perhaps, sir, a few men on either side of the animal might raise him sufficiently to allow of his getting up."

No, Sir (thunders the examiner) I tell you, *No.*

Nevertheless the poor student knows they might, and gets deeper and deeper into the mud of a not far distant quagmire in the shape of an ignominious "pluck" when the list of successful candidates goes up.

Here the modern Alexander stands, confronted with a knot of more than Gordian intricateness.

Unlike the Alexander of old, however, he is swordless, the only weapon in his possession being that tiny toy—his human brain—which he is expected to match against that of the immortal "Senex." Poor Alexander!

Now to be serious for a moment. I, and probably the student also, might mention several other methods of raising an animal in the condition that "Senex" describes. These "Senex" himself must be aware of. If aware of these as I suppose he must be, why not take any one of the many reasonable answers a student would make to his query, and not insist upon having his own particular pet fad and fancy, or make the student stand upon the same plank as himself.

There is, in the modern examination, far too great a tendency towards this useless, purposeless, hectoring of a student. I speak now both from the experience of my own examinations and from what I have seen of those of others.

I have seen men, men whom I have taught, and who have been far and away the best men of their class, men in full possession of their senses and the ordinary amount of brains, I have seen them brow-beaten and hectored by a quibble of this description until they have assumed for the time being the aspect of a hopeless idiot.

I daresay this is strong language, but still the fact remains that it is truth. As a reasonable and inquiring man I have hunted round for what I could put down as the examiner's motive for acting in this ridiculous manner. The conclusion I have come to is this: There is a growing danger in these days of higher education of a student going up for his examination much better read, more modern and less bigotted in his ideas, much more scientific, and much better educated than his examiner. Consequently the examiner (a worthy man no doubt, and one who is an ornament to the profession to which he belongs) who comes straight from the hard every day routine of a rough veterinary practice where he must get "stale," is driven to hide his ignorance and mask his inability under the cloak of *practical knowledge.* A fig I say for *Practical knowledge* unless, mind you I say *unless*, with that practical knowledge he is up to date and scientific.

There is a danger (and I myself experienced it) of a man missing possible credit marks by *knowing too much* and talking over the heads of the examiners. As a member of the profession I cannot but deplore that such should be the case. Still, I have firmly believed for some years that it is so, and am glad of the opportunity that "Emergencies and improvisation" gives me for stating what I think.

To return just for one minute to the original conundrum.

Can any reasonable human being expect for one moment that anyone could give as good a solution to the difficulty when it is put in the form of a question at a *viva voce* examination as he would do if confronted with the actual problem itself. What I maintain is this: put any ordinary individual face to face with the chinked-backed horse on the floor and he will either get him up or "chink" his own back in the attempt.

I am glad "Senex" has written under a *nom de plume*, for naturally I can say more now than if I knew the man personally; and can also take refuge under the same shelter.

Considering it as a question given seriously to an educated man of the 19th century and an intelligent answer expected, I do not think I have ever heard of its equal in ridiculous childishness.

Apologising Mr. Editor for the unusual length of this communication, and hoping you will find room to give it a prominent position in your next issue.—I remain, yours faithfully,

SENEX II.

THE BOG SPAVIN TREATMENT PRESCRIPTION

Sir,

When Mr. Deans published his prescription for this injection I pointed out that as printed it was not intelligible and asked him to explain this and how he compounded same, but this he has not done, and I now propose to offer some comment upon it as published. It is painful to me as a member, and it is certainly not creditable to the profession, to see a prescription written above the signature of M.R.C.V.S. which cannot be prepared except by conjecture, and if presented at the shop to dispense would probably receive the scorn and unfriendly criticism of some druggist's apprentice.

There is no such substance known to chemical or pharmaceutical nomenclature as *decolourised iodine*, and I submit that there is no excuse in the world for an educated veterinarian putting into a prescription a substance which does not exist, and I am surprised to see a professor repeating the mistake without comment. Assuming that one of of the non-official *discoloured preparations* of iodine are intended I see nothing that the injection has to recommend it from a medico-pharmaceutic point of view, and with confidence I submit to your readers that its greatest virtue over the official preparations is the somewhat mysterious empiricism which surround sit as being the outcome of five years laborious experimentation.—Yours truly,

J. DONALD, V.S.

A QUESTION OF ETHICS.

Dear Sir,

No doubt, as "Old Obadiah" suggests, it is, as a rule, unwise to purchase our patients from our clients, but it ought not to be so if our clients were rational beings and the transaction honourably carried out. If after purchase the case recovered the vendor *ought* as a gentleman to be pleased, and if it didn't they *ought* to sympathise, and when this is not the case we are afraid that no thought of the "hereafter," as "Veritas" suggests, would make them.

"Veritas" goes so far as to consider "Old Obadiah" showed a "noble spirit" and "large heartedness" in refraining from buying a *bargain* (??). What nonsense this is! for he evidently did not purchase the sheep for fear of being laughed at, as shown by his simile of the lame horse in the last two paragraphs of his letter.

What a poor idea of humanity "Veritas" has when he considers the actions of business men depend upon their belief or disbelief in an "hereafter." Why even a parson would not think of it in transacting business, and even if anybody did think of it, we are afraid it would not deter the majority from "getting all they could in any way they could" and if they didn't life would not be worth *their* having. Let "Veritas" watch for himself and he will soon be satisfied that the *majority* of those who profess—as far as one can judge—to live in the light of eternal life beyond "the grave" usually accomplish this feat of "getting" in the best way they can.

Why, most things, especially business transactions, are done for gain, and quite right too, so long as they are done honourably between man and man, and one of the

greatest wrongs to our fellow man, is to act otherwise. We should do "right" *for its own sake* and because it is a pleasure to do it, and not from any fear of being punished hereafter.

Let "Old Obadiah" and "Veritas" both learn this lesson and educate their clients to do likewise, and they need have no hesitation in buying or selling "a bargain" to each other.—Yours truly,

"YOUNG OBADIAH."

Midland Counties V.M.A.—A Correction.

Mr. W. H. BROOKE asks us to note that in his paper (September 10th, pp. 150-51) the formula NaCl 2 should read ZnCl 2.

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Col. Durrant, Major J. A. Nunn, Messrs. W. H. Brooke, E. R. Edwards, Fred. E. Pirkis, J. Donald, C. Martin, R. Moore, T. Hopkin, Daves, Gibbings & Co., H. L.

The American Veterinary Review.

Original articles and reports should be written on one side only of the paper, and authenticated by the names and addresses of the writers, not necessarily for publication.

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Meetings, Third Friday, Feb., May, Aug. and Nov.

NORTH OF SCOTLAND V.M.S.
Pres: Mr. Wm. Anderson. M.R.C.V.S., Craigisla, Keith
Hon. Sec: Mr. William McPherson, M.R.C.V.S., Huntly

ONTARIO V.A.
Pres: Mr. G. L. Robson.
Sec: C. H. Sweetapple, Toronto.

ROYAL COUNTIES V.M.A.
Pres: Mr. T. W. Lepper, M.R.C.V.S., Aylesbury
Hon. Sec: Mr. J. Sutcliffe Hurndall, M.R.C.V.S.
Sussex Villas, Kensington, W.
Meetings, Last Friday, Feb., June and Nov.

ROYAL SCOTTISH V.S.
Pres: Mr. Reid, M.R C.V.S, Auchtermuchty.
Hon. Sec: Mr. W. D. Fairbairn, M.R.C.V.S., Cupar, Fifeshire

ROYAL VETERINARY COLLEGE M.A.
Pres: Prof. Hobday.
Hon. Sec: Mr. R. W. Hall, M.R.C.V.S.
Assist. H.S. Mr. C. Radway, R.V.C., Camden Town, N.W.

SCOTTISH METROPOLITAN V.M.S.
Pres: Mr. Andrew Boyd, F.R.C.V.S., Melrose
Hon. Sec: Mr. P. Moir, M.R.C.V.S., 9 Kilmain Terr. Edinbro'

SOUTH DURHAM AND NORTH YORKSHIRE V.M.A.
Pres.: Mr. H. H. Roberts, M.R.C.V.S., Bishop Auckland.
Hon. Sec: Mr. W. Awde, F.R.C.V.S., Stockton-on-Tees.
Meetings, First Friday, Mar., June, Sept. and Dec.

SOUTHERN COUNTIES V.M.S.
Pres: Mr. J. T. King, M.R.C.V.S, Bournemouth, Hants
Hon. Sec: Mr. C. Pack, M.R.C.V.S., Lymington, Hants.
Meetings, Last Thursday, Mar., June and Sept.

SOUTH WALES AND MONMOUTHSHIRE V.M.A.
Pres: Mr. E. Sayer, M.R.C.V.S, Newport, Mon.
Hon Sec. Mr. D. G. Davies, M.R.C.V.S., High-st, Swansea
Treas. Mr. E. Sayer, M.R.C.V.S., Newport, Mon.
Meetings First Thursday in March, and Autumn.

WESTERN COUNTIES V.M.A.
Pres: Mr. F. T. Harvey, F.R.C.V.S., St. Columb, Cornwall
Hon. Sec: Mr. John Dunstan, M.R.C.V.S.
St. Mellion, Cornwall
Meetings, Third Thursday, March and September.

WEST OF SCOTLAND V.M.A.
Pres: Dr. James McIntosh McCall, Vety. Coll. Glasgow
Hon. Sec. & Treas: Mr. Hugh Begg, M.R.C.V.S., East Kilbride

YORKSHIRE V.M.A.
Pres Mr. W. F. Greenhalgh, M.R.C.V.S.
Brunswick Terrace, Leeds
Hon. Sec; Mr. A. McCarmick, M.R.C.V.S., Kirkstall-rd, Leeds
Meetings, Last Friday in Jan., April, and October.